WHAT IS CLAIMED IS

1. A robot remote manipulation system including a bipedal walking robot and a remote manipulation device for remotely manipulating the bipedal walking robot, the robot being connected to the remote manipulation device via a communication network and controlled by controlling data from the remote manipulation device,

the remote manipulation device comprising:

a pair of bilateral mechanical rotating elements each providing a quantity of motion for one of bilateral legs of the bipedal walking robot; and

a controlling data transmitter for transmitting controlling data corresponding to the quantities of motion to the bipedal walking robot; and

the bipedal walking robot comprising:

a controlling data receiver for receiving the controlling data transmitted from the remote manipulation device; and

a leg motion controller for processing the received controlling data and causing the bilateral legs to move forward or backward according to the controlling data.

2. The robot remote manipulation system as claimed in Claim 1,

the bipedal walking robot further comprising:

a sensor for sending environmental information;

a force sense data transmitter for calculating forces applied to the bilateral legs based on the environmental information from the sensor and transmitting the calculated result to the remote manipulation device as force sense data; and

the remote manipulation device further comprising:

a resistance adjuster for controlling motors for rotating each of the bilateral mechanical rotating elements, respectively, based on the force sense data transmitted from the bipedal walking robot, and adjusting resistance of the rotating motion of the bilateral mechanical rotating elements.

3. The robot remote manipulation system as claimed in Claim 1, wherein

the sensor comprises an inclination sensor for sensing inclination information of the bipedal walking robot.

4. A remote manipulation device for remotely manipulating a bipedal walking robot connected to the remote manipulation device via a communication network, comprising:

a pair of bilateral mechanical rotating elements each providing a quantity of motion for one of bilateral legs of the bipedal walking robot; and

a controlling data transmitter for transmitting controlling data corresponding to the quantities of motion to the bipedal walking robot.

5. The robot remote manipulation device as claimed in Claim 4, wherein

the controlling data transmitter controls the bilateral mechanical rotating elements to adjust lengths of steps of the bipedal walking robot based on the quantities of motion.

6. The robot remote manipulation device as claimed in Claim 4, wherein

the controlling data transmitter controls the bilateral mechanical rotating elements to turn the bipedal walking robot based on a difference between the respective quantities of motion.

7. The robot remote manipulation device as claimed in Claim 4, further comprising:

a resistance adjuster for receiving force sense data via a communication network from the bipedal walking robot, the force sense data being obtained based on information sensed by an inclination sensor provided in the bipedal walking robot and indicating force applied to the bilateral legs of the bipedal walking robot, and for controlling motors for rotating each of the bilateral mechanical rotating elements, respectively, based on the force sense data transmitted from the bipedal walking robot, and adjusting resistance of the rotating motion of the bilateral mechanical rotating elements.

8. The robot remote manipulation device as claimed in Claim 4, wherein

the bilateral mechanical rotating elements comprise treadmills having rotary belts or rollers.

9. The robot remote manipulation device as claimed in Claim 4, further comprising:

a display for displaying an image transmitted from an imaging device of the bipedal walking robot.

10. A remote manipulating method in a robot remote manipulation system including a bipedal walking robot and a remote manipulation device for remotely manipulating the bipedal walking robot, the robot being connected to the remote manipulation device via a communication network and controlled by controlling data from the remote manipulation device, the method comprising the steps of:

operating a pair of bilateral mechanical rotating elements in the remote manipulation device, and providing a quantity of motion for each bilateral leg of the bipedal walking robot; and

transmitting controlling data corresponding to the quantities of motion to the bipedal walking robot;

in the bipedal walking robot, receiving the controlling data transmitted from the remote manipulation device; and

processing the received controlling data and causing the bilateral legs to move forward or backward according to the controlling data.